**California Adventures: Teacher Answer Key**

**Goal: The goal of the following activity is to give students practice finding measures of central tendency, calculating the standard deviation and making predictions.**

**Materials: Each group will need a calculator and student worksheet.**

Disneyland’s California Adventure opened in 2001. The data below show the attendance of the park per year (in millions) from 2001- 2015.

(Source: <http://www.scottware.com.au/theme/feature/atend_disparks.htm#Yearly>)

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| 5.0 | 4.7 | 5.3 | 5.6 | 5.8 | 6.0 | 5.7 | 5.6 | 6.1 | 6.3 | 6.3 | 7.8 | 8.5 | 8.8 | 9.4 |
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1. What is the average attendance for California Adventure from 2001-2015? Please round your final answer to the nearest tenth.

 rounded to 6.5

1. What is the middle number (median) of the attendance?

**First we need to order the data and then find the middle number.**

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| 4.7 | 5.0 | 5.3 | 5.6 | 5.6 | 5.7 | 5.8 | 6.0 | 6.1 | 6.3 | 6.3 | 7.8 | 8.5 | 8.8 | 9.4 |
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**Our median in this case is 6.**

1. Are there any years that have reoccurring attendance? Is so what is the attendance?

And what statistical word would we relate to this reoccurring value?

**Yes, there are a couple of years that have reoccurring attendance. The attendance that occurs more than once is 5.6 and 5.3 or 5,600,000 and 5,300,000. The statistical word relating to this reoccurring value is the mode. This data set is bimodal (contains two modes).**

1. Which measure(s) of central tendency would best represent the data?

**Recall Mean = 6.5 Median = 6.0 Mode = 5.3 and 5.6**

**In this case, it looks like the Median would be the best measure of central tendency to use out of the three. The mean is higher than most of the data we have due to the large jump in attendance towards the end of the data set.**

1. How does the data vary in terms of attendance (calculate the standard deviation)? Please round your final answer to the nearest hundredths.

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1. If you had to predict the attendance of California adventure for 2016, what would you predict? Please be prepared to explain your answer.

**Following the trend of attendance for 2001-2015, it would appear that the average attendance per year would fall somewhere between 9.0-9.8. This question has a high probability of error, but it is good to discuss the pattern that the students see (the trend is that the attendance goes up mostly every year, except for one year). You can also discuss why they think the attendance is going up, etc.**